

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7803092

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT OF PATENT SECURITY INTEREST PREVIOUSLY RECORDED AT REEL/FRAE (040646/0799)

CONVEYING PARTY DATA

Name	Execution Date
HSBC BANK USA, NATIONAL ASSOCIATION, AS RESIGNING AGENT	02/10/2023

RECEIVING PARTY DATA

Name:	JPMORGAN CHASE BANK, N.A., AS SUCCESSOR AGENT
Street Address:	10 S. DEARBORN
Internal Address:	FLOOR L2
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60603

PROPERTY NUMBERS Total: 307

Property Type	Number
Patent Number:	7221251
Patent Number:	9257997
Patent Number:	8159052
Patent Number:	6618456
Patent Number:	8395331
Patent Number:	7973689
Patent Number:	6836095
Patent Number:	6472856
Patent Number:	6094038
Patent Number:	8860589
Patent Number:	9088293
Patent Number:	9106249
Patent Number:	8947107
Patent Number:	9389259
Patent Number:	7826542
Patent Number:	6518725
Patent Number:	6504422
Patent Number:	6794926
Patent Number:	8525313

PATENT

Property Type	Number
Patent Number:	8093714
Patent Number:	8367469
Patent Number:	8703540
Patent Number:	6219262
Patent Number:	8456383
Patent Number:	7075523
Patent Number:	6917316
Patent Number:	8427126
Patent Number:	7042744
Patent Number:	7116563
Patent Number:	8009011
Patent Number:	7561086
Patent Number:	7933354
Patent Number:	7154304
Patent Number:	8654548
Patent Number:	7791415
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Patent Number:	6816022
Patent Number:	8823453
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Patent Number:	6512471
Patent Number:	9444615
Patent Number:	9252834
Patent Number:	9231750
Patent Number:	8890566
Patent Number:	9118316
Patent Number:	6015999
Patent Number:	RE38608
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Patent Number:	7808220
Patent Number:	6424129
Patent Number:	7590151

Property Type	Number
Patent Number:	7843171
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Patent Number:	6918049
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Patent Number:	6646478
Patent Number:	6959317
Patent Number:	6441597
Patent Number:	6377032
Patent Number:	6239509
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Patent Number:	8259058
Patent Number:	8373402
Patent Number:	8773099
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Patent Number:	6714426
Patent Number:	6625045
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Patent Number:	6813170
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Patent Number:	9306780
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Patent Number:	6486871
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Patent Number:	9219427
Patent Number:	6429707
Patent Number:	6472852

Property Type	Number
Patent Number:	9389252
Patent Number:	6495995
Patent Number:	9030238
Patent Number:	9379103
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Property Type	Number
Patent Number:	7292670
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Patent Number:	9413237
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Patent Number:	9354268
Patent Number:	8704450
Patent Number:	8664745

Property Type	Number
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Patent Number:	9214867
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Patent Number:	8300375
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Patent Number:	8964418
Patent Number:	9231400
Application Number:	12186290
Application Number:	13549017
Application Number:	14824294
Application Number:	14560574
Application Number:	13873399
Application Number:	15058978
Application Number:	15089660
Application Number:	14329614
Application Number:	14827142
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Application Number:	14800057
Application Number:	14712212
Application Number:	14755343
Application Number:	14530115
Application Number:	14530112
Application Number:	14530156
Application Number:	62405135
Application Number:	14720420
Application Number:	14561049
Application Number:	14695890
Application Number:	14171126
Application Number:	14767363
Application Number:	13296185
Application Number:	14159926
Application Number:	14810254

Property Type	Number
Application Number:	15055264
Application Number:	14814384
Application Number:	14927361
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Application Number:	14588040
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Application Number:	15043080
Application Number:	13550235
Application Number:	14755602
Application Number:	62372720
Application Number:	14849304
Application Number:	15244909
Application Number:	15296740
Application Number:	14577372
Application Number:	14604816
Application Number:	14849209
Application Number:	14849288
Application Number:	13806373
Application Number:	12417303
Application Number:	13742127
Application Number:	14214095
Application Number:	13874321
Application Number:	15058701
Application Number:	15264251
Application Number:	13430338
Application Number:	15231232
Application Number:	13355396
Application Number:	14309708
Application Number:	14939878
Application Number:	15237288
Application Number:	13743765
Application Number:	13309423
Application Number:	14982952
Application Number:	13852780
Application Number:	14982893
Application Number:	14798700
Application Number:	14814379
Application Number:	13434807

Property Type	Number
Application Number:	13193407
Application Number:	12897672
Application Number:	15094306
Application Number:	15155909
Application Number:	14855286
Application Number:	13489329
Application Number:	15165870
Application Number:	14267678
Application Number:	15136692
Application Number:	14178161
Application Number:	14638701
Application Number:	14970396
Application Number:	14946555
Application Number:	14878220
Application Number:	13754709
Application Number:	15173265
Application Number:	14814368
Application Number:	15257561
Application Number:	13851892
Application Number:	13616726
Application Number:	14630415
Application Number:	14988647

CORRESPONDENCE DATA

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Correspondent Name: COURTNEY WELSHIMER
Address Line 1: 425 LEXINGTON AVENUE
Address Line 4: NEW YORK, NEW YORK 10017

ATTORNEY DOCKET NUMBER:	509265/2423
NAME OF SUBMITTER:	J. JASON MULL
SIGNATURE:	/J. Jason Mull/
DATE SIGNED:	02/17/2023

Total Attachments: 48

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ASSIGNMENT OF SECURITY INTEREST IN PATENTS

This **ASSIGNMENT OF SECURITY INTEREST IN PATENTS** (this “Security Interest Assignment”), dated as of February 10, 2023, is made by **HSBC BANK USA, NATIONAL ASSOCIATION**, in its capacity as the resigning administrative agent (the “Resigning Agent”), in favor of **JPMORGAN CHASE BANK, N.A.**, in its capacity as the successor administrative agent (the “Successor Agent”).

WHEREAS, reference is made to (i) the Amended and Restated Credit Agreement dated as of November 15, 2016 (as amended, modified, supplemented or restated from time to time, the “Credit Agreement,” which Credit Agreement amended and restated in its entirety the Credit Agreement dated as of May 2, 2013, as amended, supplemented or otherwise modified), by and among *inter alios*, Semtech Corporation, a Delaware corporation (the “Borrower”), certain Subsidiaries of the Borrower, as guarantors (“the Guarantors”), the several financial institutions party thereto as Lenders, and HSBC Bank USA, National Association, in its separate capacities as the Administrative Agent, and as Swing Line Lender and L/C Issuer, and (ii) the Amended and Restated Security Agreement dated as of November 15, 2016 (as amended, modified, supplemented or restated from time to time, the “Security Agreement,” which Security Agreement amended and restated in its entirety the Security Agreement dated as of May 2, 2013, as amended, supplemented or otherwise previously modified) by and among the Borrower, Semtech New York Corporation, a Delaware corporation (“SNY”), Sierra Monolithics, Inc., a California corporation (“SMI”), Semtech EV, Inc., a California corporation (“SEV”), Triune Systems, L.L.C., a Texas limited liability company (“Triune Systems”), and Triune IP, LLC, a Texas limited liability company (“Triune IP” and, together with the Borrower, SNY, SMI, SEV, and Triune Systems, the “Assignors” and each an “Assignor”), each of the other Guarantors party to the Credit Agreement, and the Resigning Agent, as Administrative Agent for the benefit of the Secured Parties;

WHEREAS, in connection with the Credit Agreement and the Security Agreement, Resigning Agent is a party to that certain Amended and Restated Grant of Security Interest (Patents) dated as of November 15, 2016 (the “Patent Security Agreement”) with the Assignors, and such Patent Security Agreement was recorded in the United States Patent and Trademark Office (the “PTO”) on November 17, 2016 at Reel/Frame: 040646/0799;

WHEREAS, the Patent Security Agreement amended and restated, and collectively superseded and replaced in their entirety, each of (a) the Grant of Security Interest (Patents) dated as of May 2, 2013, by Borrower, SNY and SMI in favor of Assignee, recorded with the PTO on May 2, 2013 on Reel 030341 at Frame 0099 (as Document No. 502333909), as the same has been supplemented and modified to the date hereof, including by the Supplement to Grant of Security Interest (Patents) dated as of May 13, 2015 and recorded with the PTO on May 28, 2015 on Reel 035732 at Frame 0347 (as Document No. 503325362), the Supplement to Grant of Security Interest (Patents) dated as of July 9, 2015 and recorded with the PTO on July 21, 2015 on Reel 036146 at Frame 0366 (as Document No. 503401646), the Supplement to Grant of Security Interest (Patents) dated as of August 21, 2015 and recorded with the PTO on September 3, 2015 on Reel 036490 at Frame 0872 (as Document No. 503466252), the Supplement to Grant of Security Interest (Patents) dated as of October 25, 2015 and recorded with the PTO on December 14, 2015 on Reel 037284 at Frame 0745 (as Document No. 503610349), and the Supplement to Grant of Security Interest (Patents) dated as of May 1, 2016 and recorded with the PTO on July 15, 2016 on Reel 039170 at Frame 0082 (as Document No. 503917983); (b) the Grant of Security

Interest (Patents) dated as of May 13, 2015, by SEV in favor of Assignee, recorded with the PTO on May 28, 2015 on Reel 035732 at Frame 0260 (as Document No. 503325346), as the same has been supplemented and modified to the date hereof; (c) the Grant of Security Interest (Patents) dated as of May 13, 2015, by Triune Systems in favor of Assignee, recorded with the PTO on May 28, 2015 on Reel 035732 at Frame 0307 (as Document No. 503325354), as the same has been supplemented and modified to the date hereof, including by the Supplement to Grant of Security Interest (Patents) dated as of July 9, 2015 and recorded with the PTO on July 21, 2015 on Reel 036146 at Frame 0378 (as Document No. 503401649), the Supplement to Grant of Security Interest (Patents) dated as of August 21, 2015 and recorded with the PTO on September 3, 2015 on Reel 036490 at Frame 0895 (as Document No. 503466257), the Supplement to Grant of Security Interest (Patents) dated as of October 25, 2015 and recorded with the PTO on December 14, 2015 on Reel 037284 at Frame 0806 (as Document No. 503610360), the Supplement to Grant of Security Interest (Patents) dated as of January 31, 2016 and recorded with the PTO on May 23, 2016 on Reel 038684 at Frame 0656 (as Document No. 503838359); and (d) the Grant of Security Interest (Patents) dated as of May 13, 2015, by Triune IP in favor of Assignee, recorded with the PTO on May 28, 2015 on Reel 035732 at Frame 0326 (as Document No. 503325358), as the same has been supplemented and modified to the date hereof, including by the Supplement to Grant of Security Interest (Patents) dated as of July 9, 2015 and recorded with the PTO on July 21, 2015 on Reel 036146 at Frame 0403 (as Document No. 503401656), the Supplement to Grant of Security Interest (Patents) dated as of October 25, 2015 and recorded with the PTO on December 14, 2015 on Reel 037284 at Frame 0759 (as Document No. 503610351), the Supplement to Grant of Security Interest (Patents) dated as of January 31, 2016 and recorded with the PTO on May 23, 2016 on Reel 038684 at Frame 0509 (as Document No. 503838339), and the Supplement to Grant of Security Interest (Patents) dated as of January 31, 2016 and recorded with the PTO on May 23, 2016 on Reel 038684 at Frame 0656 (as Document No. 503838359), and the Supplement to Grant of Security Interest (Patents) dated as of May 1, 2016 and recorded with the PTO on July 15, 2016 on Reel 039170 at Frame 0103 (as Document No. 503917988) (collectively, the “Superseded Patent Security Agreements”);

WHEREAS, pursuant to the Patent Security Agreement, as security for the full, complete and final payment and performance when due (whether at stated maturity, by acceleration or otherwise) of all the Secured Obligations, each Assignor assigned, conveyed, mortgaged, pledged, hypothecated and transferred to the Resigning Agent, for the benefit of the Secured Parties, a security interest (the “Security Interest”) in and to all of such Assignor’s rights, title and interests in, to and under the Patent Collateral (as that term is defined in the Patent Security Agreement), including, without limitation, each registered patent and each application for the registration of a patent listed on Exhibits A through L attached hereto;

WHEREAS, pursuant to that certain Third Amendment and Restatement Agreement dated as of September 26, 2022, Resigning Agent resigned as Administrative Agent and Successor Agent was appointed as Administrative Agent for the benefit of the Secured Parties; and

WHEREAS, Resigning Agent desires to assign its rights under the Patent Security Agreement to Successor Agent.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto hereby agree as follows:

Assignment

(a) Resigning Agent hereby irrevocably assigns and delegates to Successor Agent all of the rights, benefits, authority, powers, and duties of Resigning Agent under the Patent Security Agreement, including Resigning Agent's Security Interest in the Patent Collateral, including, without limitation, each patent registration and application for the registration of a patent listed on Exhibits A through L attached hereto.

(b) Successor Agent shall succeed to the rights, benefits, authority, powers and duties of the Resigning Agent under the Patent Security Agreement as if it were the original administrative agent thereunder, and the rights, benefits, powers and duties of the Resigning Agent under the Patent Security Agreement shall be terminated.

(c) Solely if and to the extent the Patent Security Agreement did not amend and restate, and collectively supersede and replace in its entirety, the Superseded Patent Security Agreements, (i) Resigning Agent hereby irrevocably assigns and delegates to the Successor Agent all of the rights, benefits, authority, powers, and duties of Resigning Agent under the Superseded Patent Security Agreements, including Resigning Agent's Security Interests in each patent registration and each application for the registration of a patent listed on the schedules thereto; and (ii) Successor Agent shall succeed to the rights, benefits, authority, power and duties of the Resigning Agent under the Superseded Patent Security Agreements as if it were the original administrative agent thereunder, and the rights, benefits, power and duties of the Resigning Agent under the Superseded Patent Security Agreements shall be terminated.

Miscellaneous

(a) Terms capitalized but not defined herein shall have the meaning provided or provided by reference for such terms in the Patent Security Agreement or the Security Agreement, as applicable.

(b) Neither this Security Interest Assignment nor any term hereof may be changed, waived, discharged or terminated, except by an instrument in writing signed by the party (including, if applicable, any party required to evidence its consent to or acceptance of this Security Interest Assignment) against whom enforcement of such change, waiver, discharge or termination is sought.

(c) In case any provision in or obligation under this Security Interest Assignment shall be invalid, illegal or unenforceable in any jurisdiction, the validity, legality and enforceability of the remaining provisions or obligations, or of such provision or obligation in any other jurisdiction, shall not in any way be affected or impaired thereby.

(d) THIS SECURITY INTEREST ASSIGNMENT AND ANY CLAIMS, CONTROVERSY, DISPUTE OR CAUSE OF ACTION (WHETHER IN CONTRACT OR TORT OR OTHERWISE) BASED UPON, ARISING OUT OF OR RELATING TO THIS

SECURITY INTEREST ASSIGNMENT AND THE TRANSACTIONS CONTEMPLATED HEREBY WILL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW OTHER THAN NEW YORK GENERAL OBLIGATIONS LAW 5-1401 AND 5-1402.

(e) This Security Interest Assignment shall be binding upon, and shall inure to the benefit of, the parties hereto and their respective successors and assigns.

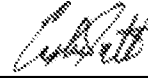
(f) This Security Interest Assignment may be executed in one or more counterparts (and by different parties hereto in different counterparts), each of which will constitute an original, but all of which when taken together will constitute a single contract. Signature pages may be detached from multiple counterparts and attached to a single counterpart so that all signature pages are attached to the same document. Delivery of an executed counterpart of a signature page to this Security Interest Assignment by facsimile or electronic transmission (such as "PDF") will be as effective as delivery of a manually executed counterpart of this Security Interest Assignment.

[Signature page follows]

IN WITNESS WHEREOF, the parties hereto have caused this Security Interest Assignment to be duly executed and delivered by their respective officers thereunto duly authorized, such execution being made as of the date first written above.

HSBC BANK USA, NATIONAL ASSOCIATION,
in its capacity as the Resigning Agent

By: _____



Name: Ershad Sattar
Title: Vice President

[SIGNATURE PAGE TO ASSIGNMENT OF SECURITY INTEREST IN PATENTS]

PATENT
REEL: 062781 FRAME: 0558

JPMORGAN CHASE BANK, N.A.,
in its capacity as the Successor Agent

By: 
Name: Richard Ong Pho
Title: Executive Director

EXHIBIT A**U.S. PATENTS****OWNER: SEMTECH CORPORATION**

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Corporation	Air core inductive element on printed circuit board for use in switching power conversion circuitries	U.S. 11/085,322	3/22/2005	7,221,251	5/22/2007	In Force
Semtech Corporation	Analog Loop Filter Systems, Apparatus and Methods	U.S. 13/450,709	4/19/2012	9,257,997	2/9/2016	In Force
Semtech Corporation	Apparatus and method for a chip assembly including a frequency extending device	U.S. 12/166,173	7/1/2008	8,159,052	4/17/2012	In Force
Semtech Corporation	Asynchronous Timing Oscillator re-synchronizer & Method	U.S. 09/422,409	10/21/1999	6,618,456	9/9/2003	In Force
Semtech Corporation	Automatic dropout prevention in LED drivers	U.S. 12/898,547	10/5/2010	8,395,331	3/12/2013	In Force
Semtech Corporation	Bandpass multi-bit sigma- delta analog to digital conversion	U.S. 12/560,288	9/15/2009	7,973,689	7/5/2011	In Force
Semtech Corporation	Battery charging method and apparatus	U.S. 10/424,266	4/28/2003	6,836,095	12/28/2004	In Force
Semtech Corporation	Bounded power supply voltage positioning	U.S. 09/803,689	3/9/2001	6,472,856	10/29/2002	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Semtech Corporation	Buck converter with inductive turn ratio optimization	U.S. 09/340,575	6/28/1999	6,094,038	7/25/2000	In Force
Semtech Corporation	Built-In Self-Healing Without Added Physical Redundancy in Time-Interleaved ADCs	U.S. 13/944,829	7/17/2013	8,860,589	10/14/2014	In Force
Semtech Corporation	Calibration of a Time- Interleaved Analog-to-Digital Converter (ADC) Circuit	U.S. 14/477,768	9/4/2014	9,088,293	7/21/2015	In Force
Semtech Corporation	Calibration of a Time- Interleaved Analog-to-Digital Converter (USPTO changed invention title)	U.S. 14/477,743	9/4/2014	9,106,249	8/11/2015	In Force
Semtech Corporation	Capacitance Measurement of High Voltage Device	U.S. 13/765,965	2/13/2013	8,947,107	2/3/2015	In Force
Semtech Corporation	Capacitance Measurement of High Voltage Device	U.S. 14/576,846 (Continuation)	12/19/2014	9,389,259	7/12/2016	In Force
Semtech Corporation	Channelization filter communication systems and methods therefor	U.S. 11/644,949	12/26/2006	7,826,542	11/2/2010	In Force
Semtech Corporation	Charge balancing system	U.S. 10/181,851	7/11/2002	6,518,725	2/11/2003	In Force
Semtech Corporation	Charge pump with current limiting circuit	U.S. 09/717,769	11/21/2000	6,504,422	1/7/2003	In Force
Semtech Corporation	Charge pump with current limiting circuit	U.S. 10/313,462	12/5/2002	6,794,926	9/21/2004	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Corporation	Chip Assembly with a Frequency Extending Device	U.S. 13/418,201 (Continuation)	3/12/2012	8,525,313	9/3/2013	In Force
Semtech Corporation	Chip assembly with chip-scale packaging	U.S. 12/635677	12/10/2009	8,093,714	1/10/2012	In Force
Semtech Corporation	Chip-scale Semiconductor die packaging method	U.S. 13/347,543 (Continuation)	1/10/2012	8,367,469	2/5/2013	In Force
Semtech Corporation	Chip-Scale Semiconductor Die Packaging Method	U.S. 13/742,252 (Continuation)	1/15/2013	8,703,540	4/22/2014	In Force
Semtech Corporation	Circuit and method for adaptive leading edge blanking in pulse width modulated current mode switching power supply controllers	U.S. 09/567,205	5/8/2000	6,219,262	4/17/2001	In Force
Semtech Corporation	Circuit and Method for Controlling a Liquid Crystal Segment Display	U.S. 11/912,110	4/27/2005	8,456,383	6/4/2013	In Force
Semtech Corporation	Data acquisition from capacitive touch pad	U.S. 10/533,106	4/28/2005	7,075,523	7/11/2006	In Force
Semtech Corporation	Digital adjustment of gain and offset for digital to analog converters	U.S. 10/440,669	5/19/2003	6,917,316	7/12/2005	In Force
Semtech Corporation	Digital control of PWM converters with nonlinear gain scheduling	U.S. 12/627,912	11/30/2009	8,427,126	4/23/2013	In Force
Semtech Corporation	Diode stack	U.S. 10/709,397	5/1/2004	7,042,744	5/9/2006	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Corporation	Dual mode over-current protection for switching mode power converter	U.S. 11/133,902	5/19/2005	7,116,563	10/3/2006	In Force
Semtech Corporation	Electrically adjustable resistor	U.S. 12/147,368	6/26/2008	8,009,011	8/30/2011	In Force
Semtech Corporation	Electronic Circuit for the Analog-to-Digital Conversion of an Analog Input Signal	U.S. 11/848,869	4/15/2005	7,561,086	7/14/2009	In Force
Semtech Corporation	Encoding and decoding architecture and method for pipelining encoded data or pipelining with a look-ahead strategy	U.S. 11/641,363	12/18/2006	7,933,354	4/26/2011	In Force
Semtech Corporation	Enhanced phase and frequency detector that improves performance in the presence of a failing clock	U.S. 11/180,279	7/12/2005	7,154,304	12/26/2006	In Force
Semtech Corporation	Flyback primary side output voltage sensing system and method	U.S. 13/312,482	12/6/2011	8,654,548	2/18/14	In Force
Semtech Corporation	Fractional -N synthesized chirp generator	U.S. 12/122,635	5/16/2008	7,791,415	9/7/2010	In Force
Semtech Corporation	Glass/ceramics replacement of epoxy for high temperature hermetically sealed non-axial	U.S. 13/194,585	7/29/2011	9,111,869	8/18/2015	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	electronic packages					
Semtech Corporation	High efficiency power supply for LED lighting applications	U.S. 11/450,232	6/8/2006	7,265,504	9/4/2007	In Force
Semtech Corporation	High-Linearity, Ultra- Wideband Multi-Stage Track-and-hold Amplifier with Shunted Source-Follower First-Stage ADCs	U.S. 14/179,503	2/12/2014	9,337,785	5/10/2016	In Force
Semtech Corporation	High-Order and Nested Redundancies in Time- Interleaved ADCs	U.S. 13/944,826	7/17/2013	9,000,960	4/7/2015	In Force
Semtech Corporation	High-speed charge-mode controller for a multi-phase switched-mode power converter	U.S. 09/908,007	7/17/2001	6,462,521	10/8/2002	In Force
Semtech Corporation	High speed track and hold circuit	U.S. 12/551,447	8/31/2009	8,111,091	2/7/2012	In Force
Semtech Corporation	Hybrid Resistive Digital-to-Analog Devices	U.S. 13/673,103	11/9/2012	8,717,213	5/6/2014	In Force
Semtech Corporation	Improved oscillator system and method	U.S. 10/248,176	12/23/2002	6,816,022	11/9/2004	In Force
Semtech Corporation	Instrumentation Amplifier With Rail to Rail Input Range	U.S. 13/670,743	11/7/2012	8,823,453	9/2/2014	In Force
Semtech Corporation	Instrumentation Amplifier with Rail to Rail Input	U.S. 14/333,223 (Continuation)	7/16/2014	9,479,125	10/25/2016	In Force
Semtech Corporation	Intentionally non-monotonic digital	U.S. 09/958,502	6/11/2002	6,512,471	1/28/2003	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	to analog converter					
Semtech Corporation	Low Latency Digital Jitter Termination for Repeater Circuits	U.S. 14/235,242	11/17/14	9,444,615	9/13/2016	In Force
Semtech Corporation	Low Power Long Range Transmitter	U.S. 14/170,170	1/31/2014	9,252,834	2/2/2016	In Force
Semtech Corporation	Low-Power, Low Latency Architecture for Telecom and Datacom Multiplexers and Demultiplexers	U.S. 13/800,914	3/13/2013	9,231,750	1/5/2016	In Force
Semtech Corporation	Low-Voltage, High-Speed, Current-Mode Latch with Inductor Tail and Common-Mode Feedback for Amplitude and Current Control	U.S. 13/628,786	9/27/2012	8,890,566	11/18/2014	In Force
Semtech Corporation	Low Voltage Multi-Stage Interleaver Systems, Apparatus and Methods	U.S. 13/429,527	3/26/2012	9,118,316	8/25/2015	In Force
Semtech Corporation	Low-voltage punch-through transient suppressor employing a dual-base structure	U.S. 09/039,926	3/16/1998	6,015,999	1/18/2000	In Force
Semtech Corporation	Low-voltage punch-through transient suppressor employing a dual-base structure	U.S. 10/052,843	1/17/2002	RE38608	10/5/2004	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Corporation	Measurement and adjustment of real-time values according to residence time in networking equipment without access to real time	U.S. 12/861,467	8/23/2010	8,576,883	11/5/2013	In Force
Semtech Corporation	Method and apparatus for a charge pump DC-to-DC converter having parallel operating modes	U.S. 11/776,201	7/11/2007	7,808,220	10/5/2010	In Force
Semtech Corporation	Method and apparatus for accurately sensing output current in a DC-DC voltage converter	U.S. 09/935,286	8/21/2001	6,424,129	7/23/2002	In Force
Semtech Corporation	Method and apparatus for aligning time references when separated by an unreliable data packet network	U.S. 11/054,779	2/9/2005	7,590,151	9/15/2009	In Force
Semtech Corporation	Method and apparatus for battery charging based on battery capacity and charging source constraints	U.S. 12/017,153	1/21/2008	7,843,171	11/30/2010	In Force
Semtech Corporation	Method and apparatus for constant on-time switch mode converters	U.S. 12/188,613	8/8/2008	7,714,547	5/11/2010	In Force
Semtech Corporation	Method and apparatus for controlling the	U.S. 10/199,260	7/18/2002	6,918,049	7/12/2005	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	phase of the clock output of a digital clock					
Semtech Corporation	Method and apparatus for determining load current in a CPU core voltage regulator	U.S. 11/078,034	3/11/2005	7,268,527	9/11/2007	In Force
Semtech Corporation	Method and apparatus for driving leds	U.S. 10/434,857	5/9/2003	6,836,157	12/28/2004	In Force
Semtech Corporation	Method and apparatus for driving leds	U.S. 10/995,573	11/23/2004	7,459,959	12/2/2008	In Force
Semtech Corporation	Method and apparatus for enhancing voltage regulator transient response	U.S. 11/074,483	3/8/2005	7,446,518	11/4/2008	In Force
Semtech Corporation	Method and apparatus for improved current mode control for large conversion ratio synchronous buck converter with lossless current sense	U.S. 11/553,434	10/26/2006	7,508,182	3/24/2009	In Force
Semtech Corporation	Method and apparatus for improving the reliability of the reading of integrated circuit fuses	U.S. 10/472,258	8/10/2004	6,903,986	6/7/2005	In Force
Semtech Corporation	Method and apparatus for increasing capture range and jitter tolerance in phase detection	U.S. 10/230,619	8/29/2002	6,646,478	11/11/2003	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Semtech Corporation	Method and apparatus for increasing processing performance of pipelined averaging filters	U.S. 10/010,713	11/9/2001	6,959,317	10/25/2005	In Force
Semtech Corporation	Method and apparatus for producing a low-noise, temperature-compensated band gap voltage reference	U.S. 12/186,290	8/5/2008	20090039949	2/12/2009	In Force
Semtech Corporation	Method and apparatus for sensing output inductor current in a DC-to-DC power converter	U.S. 10/001,722	10/31/2001	6,441,597	8/27/2002	In Force
Semtech Corporation	Method and apparatus for virtual current sensing in DC-DC switched mode power supplies	U.S. 09/620,370	7/20/2000	6,377,032	4/23/2002	In Force
Semtech Corporation	Method and apparatus for voltage regulation in multi-output switched mode power supplies	U.S. 09/539,275	3/30/2000	6,239,509	5/29/2001	In Force
Semtech Corporation	Method and Circuits for Common Mode Stability and Bandwidth Broadening in Transistor Amplifiers	U.S. 13/300,500	11/18/2011	8,593,221	11/26/2013	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Semtech Corporation	Method and Device for Controlling the Backlighting of a Flat Screen	U.S. 200900015542	7/10/2008	8,259,058	9/4/2012	In Force
Semtech Corporation	Method of digital control of PWM converters achieving fast transient response and low steady state jittering	U.S. 12/552,051	9/1/2009	8,373,402	2/12/2013	In Force
Semtech Corporation	Methods to reduce output voltage ripple in constant on- time DC-DC converters	U.S. 13/197,326	8/3/2011	8,773,099	7/8/2014	In Force
Semtech Corporation	Multi-Bit Successive Approximation	U.S. 13/282,304	10/26/2011	8,618,975	12/31/2013	In Force
Semtech Corporation	Multi-Layer High-Speed Integrated Circuit Ball Grid Array Package and Process	U.S. 12/691,675	1/21/2010	8,487,430	7/16/2013	In Force
Semtech Corporation	Multi-phase and multi-module power supplies with balanced current between phases and modules	U.S. 09/440,222	11/15/1999	6,215,290	4/10/2001	In Force
Semtech Corporation	Multiple-phase, multi-module power supply system for high frequency operation	U.S. 10/287,215	11/04/2002	6,714,426	3/30/2004	In Force
Semtech Corporation	Multiphase modular power module	U.S. 10/034,347	12/28/2001	6,625,045	9/23/2003	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	employing star link topography					
Semtech Corporation	Multiple capacitive (button) sensor with reduced pinout	U.S. 13/353,171	1/18/2012	8,653,741	2/18/2014	In Force
Semtech Corporation	Multiple output power supply having soft start protection for load over-current or short circuit conditions	U.S. 10/224,269	8/19/2002	6,813,170	11/2/2004	In Force
Semtech Corporation	Non-linear transconductance amplifier	U.S. 09/331,039	6/15/1999	6,181,203	1/30/2001	In Force
Semtech Corporation	Offset peak current mode control circuit for multiple- phase power converter	U.S. 10/112,010	3/27/2002	6,664,774	12/16/2003	In Force
Semtech Corporation	Optical Transmission for Binary and Duobinary Modulation Formats	U.S. 13/793,264	3/11/2013	9,306,780	4/5/2016	In Force
Semtech Corporation	Phase and frequency detector providing immunity to mission input clock pulses	U.S. 09/911,643	7/19/2001	6,483,389	11/19/2002	In Force
Semtech Corporation	Phase detector and signal locking system controller	U.S. 09/921,797	8/2/2001	7,039,148	5/2/2006	In Force
Semtech Corporation	Phase-Locked Loop Circuit	U.S. 11/367,718	9/6/2003	7,332,972	2/19/2008	In Force
Semtech Corporation	Pointing Device with Reduced Component Count (Divisional)	U.S. 09/157,739	9/21/1998	6,175,359	1/16/2001	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Corporation	Pointing Device with Reduced Component Count (Continuation)	U.S. 09/764,222	1/16/2001	6,429,850	8/6/2002	In Force
Semtech Corporation	Pointing device with Z-axis functionality and reduced component count	U.S. 09/958,501	3/12/2002	6,486,871	11/26/2002	In Force
Semtech Corporation	Power converter having improved step down response for low duty cycle operation	U.S. 10/370,412	2/18/2003	6,703,812	3/9/2004	In Force
Semtech Corporation	Reduction of Electrostatic Discharge Effects in Charge- Pump Elevator Ladder	U.S. 13/793,595	3/11/2013	9,219,427	12/22/2015	In Force
Semtech Corporation	Reference signal switchover clock output controller	U.S. 09/911,642	7/19/2001	6,429,707	8/6/2002	In Force
Semtech Corporation	Resonant buck-type voltage converter using swinging inductance	U.S. 09/705,342	11/2/2000	6,472,852	10/29/2002	In Force
Semtech Corporation	Sampling Circuitry and Sampling Method for Plurality of Electrodes	U.S. 14/755,850	7/16/2015	9,389,252	7/12/2016	In Force
Semtech Corporation	Self-clocking multiphase power supply controller	U.S. 09/802,840	3/9/2001	6,495,995	12/17/2002	In Force
Semtech Corporation	Semiconductor Device and Method of Cascading Matched Frequency	U.S. 14/010,249	8/26/2013	9,030,238	5/12/2015	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	Window Tuned LC Tank Buffers					
Semtech Corporation	Semiconductor Device and Method of Preventing Latchup in a Charge-Pump Circuit	U.S. 14/027,043	9/13/2013	9,379,103	6/28/2016	In Force
Semtech Corporation	Sensor for capacitive touch pad pointing device	U.S. 10/528,512	3/18/2005	7,580,030	8/25/2009	In Force
Semtech Corporation	Serial-Ripple Analog-to-Digital Conversion	U.S. 13/369,093	2/8/2012	8,847,811	9/30/2014	In Force
Semtech Corporation	Signal interpolation methods and circuits	U.S. 12/630,601	12/3/2009	8,183,903	5/22/2012	In Force
Semtech Corporation	Signaling method and apparatus with a host and human input device	U.S. 10/311,734	5/24/2002	6,668,180	12/23/2003	In Force
Semtech Corporation	Single-wire communication bus for miniature low-power systems	U.S. 10/480,757	6/4/2004	7,519,005	4/19/2009	In Force
Semtech Corporation	Slave clock generation system and method for synchronous telecommunication networks	U.S. 09/298,402	4/23/1999	6,121,816	9/19/2000	In Force
Semtech Corporation	Successive Approximation Analog-to-Digital Conversion	U.S. 13/287,978	11/2/2011	8,593,325	11/26/2013	In Force
Semtech Corporation	Switchable Conductance	U.S. 13/797,522	3/12/2013	8,830,109	9/9/2014	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	Pipeline Analog-to-Digital Conversion					
Semtech Corporation	Switched mode power converter having synchronous rectification and secondary side post regulation	U.S. 10/409,933	4/8/2003	6,788,554	9/7/2004	In Force
Semtech Corporation	Switched mode power supply having variable minimum switching frequency	U.S. 11/549,744	10/16/2006	7,471,072	12/30/2008	In Force
Semtech Corporation	Switched mode Power supply method and apparatus	U.S. 11/387,943	3/23/2006	7,855,864	12/21/2010	In Force
Semtech Corporation	Switching mode power converter having secondary side bias generating and driving circuit to provide synchronous rectification and active clamp	U.S. 11/118,703	4/29/2005	7,139,179	11/21/2006	In Force
Semtech Corporation	System and Method for Extending the Overload Range of a Sigma Delta ADC System by Providing Over-Range Quantization Levels	U.S. 12/795,579	6/7/2010	8,212,699	7/3/2012	In Force
Semtech Corporation	System and method to overcome wander	U.S. 13/151,872	6/2/2011	8,949,648	2/3/2015	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
	accumulation to achieve precision clock distribution over large networks					
Semtech Corporation	Thermometer code transcoding and encoding methods and systems	U.S. 12/551,452	8/31/2009	8,022,854	9/20/2011	In Force
Semtech Corporation	Use of resistive touch screen as a proximity sensor	U.S. 13/406,352	2/27/2012	8,963,858	2/24/2015	In Force
Semtech Corporation	Variable on-time control method for high light-load efficiency, small output voltage ripple, and audible-noise-free operation	U.S. 12/716,173	3/2/2010	8,344,703	1/1/2013	In Force
Semtech Corporation	Voltage regulator with wide control bandwidth	U.S. 09/285,505	4/2/1999	6,130,526	10/10/2000	In Force
Semtech Corporation	Variation on single-ended primary inductor converter	U.S. 09/357,672	7/20/1999	6,144,565	11/7/2000	In Force
Semtech Corporation	Virtual ripple generation in switch-mode power supplies	U.S. 09/804,364	3/12/2001	6,583,610	6/24/2003	In Force

EXHIBIT B**PENDING U.S. PATENTS****OWNER: SEMTECH CORPORATION**

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Corporation	Capacitive Body Proximity Sensor	U.S. 13/549,017	3/13/2012			Pending
Semtech Corporation	Capacitive Proximity Sensor and Mobile Device	U.S. 14/824,294	8/12/2015			Pending
Semtech Corporation	Capacitive Sensing Interface for Proximity Detection	U.S. 14/560,574 (CIP)	12/4/2014			Pending
Semtech Corporation	Adaptive Switching Frequency Adjustment for a Power Supply	U.S. 13/873,399	4/30/2013			Pending
Semtech Corporation	Communication Device and Method in the Cellular Band	U.S. 15/058,978	3/2/2016			Pending
Semtech Corporation	Error Correction Data in a Video Transmission Signal	U.S. 15/089,660	4/4/2016			Pending
Semtech Corporation	Fibre Stub Device and Method Using Butt Coupling for Receptacled Photonic Devices	U.S. 14/329,614	7/11/2014			Pending
Semtech Corporation	Glass/ceramics replacement of epoxy for high temperature hermetically sealed non-axial electronic packages	U.S. 14/827,142 (Continuation)	8/14/2015			Pending

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Semtech Corporation	High-Linearity, Ultra- Wideband Multi-Stage Track- and-hold Amplifier with Shunted Source-Follower First-Stage ADCs	U.S. 15/092,215 (Continuation)	4/6/2016			Pending
Semtech Corporation	Low Parasitic Surface Mount Circuit over Wirebond IC	U.S. 62/362,501	7/14/2016			Pending
Semtech Corporation	Low Voltage Multi-Stage Interleaver Systems, Apparatus and Methods	U.S. 14/800,057 (Continuation)	7/15/2015			Pending
Semtech Corporation	Measuring Circuit for Capacitive Touch-Sensitive Panel	U.S. 14/712,212	5/14/2015			Pending
Semtech Corporation	Measuring Circuit and Measuring Method for a Capacitive Touch-Sensitive Panel	U.S. 14/755,343	6/30/2015			Pending
Semtech Corporation	Method and Device for Capacitive Near-Field Communication in Mobile Devices	U.S. 14/530,115	10/31/2014			Pending
Semtech Corporation	Method and Device for Improved Accuracy of Proximity and Touch Detection in Mobile Devices	U.S. 14/530,112	10/31/2014			Pending
Semtech Corporation	Method and Device for Reducing Radio	U.S. 14/530,156	10/31/2014			Pending

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	Frequency Interference of Proximity and Touch Detection in Mobile Devices					
Semtech Corporation	Method of Reducing Harmonic Generation in Transient Voltage Suppression Diodes	U.S. 62/405,135	10/6/2016			Pending
Semtech Corporation	Method for Stabilizing the Gain of a Discrete-State Automatic Gain Control Circuit	U.S. 14/720,420	5/22/2015			Pending
Semtech Corporation	Multi-Shield Capacitive Sensing Circuit	U.S. 14/561,049	12/4/2014			Pending
Semtech Corporation	Non-Linear Filter for DML	U.S. 14/695,890	4/24/2015			Pending
Semtech Corporation	Ranging and Positioning System	U.S. 14/171,126	2/3/2014			Pending
Semtech Corporation	Ranging and Positioning System	U.S. 14/767,363 (Continuation)	8/12/2015			Pending
Semtech Corporation	Resistive Digital-to-Analog Devices	U.S. 13/296,185	11/14/2012			Pending
Semtech Corporation	Semiconductor Device and Method of Direct Measurement and Acquisition of MEMS Employing Sigma-Delta Loop	U.S. 14/159,926	1/21/2014			Pending

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Semtech Corporation	Semiconductor Device and Method of Encapsulating Semiconductor Die	U.S. 14/810,254	7/27/2015			Pending
Semtech Corporation	Semiconductor Device and Method of Forming Insulating Layers Around Semiconductor Die	U.S. 15/055,264	2/26/2016			Pending
Semtech Corporation	Semiconductor Device and Method of Forming Small Z Semiconductor Die	U.S. 14/814,384	7/30/2015			Pending
Semtech Corporation	Semiconductor Device and Method of Forming DCALGA Package Using Semiconductor Die with Micro Pillars	U.S. 14/927,361	10/29/2015			Pending
Semtech Corporation	Semiconductor Device and Method of Stacking Semiconductor Die for System-Level ESD Protection	U.S. 62/301,045 (Provisional)	2/29/2016			Pending
Semtech Corporation	Semiconductor Device and Method for Accurate Clock Domain Synchronization	U.S. 14/588,040	12/4/2014			Pending

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	Over a Wide Frequency Range					
Semtech Corporation	Semiconductor Device and Method for Forming Inverted Pyramid Cavity Semiconductor Package	U.S. 14/825,110	8/12/2015			Pending
Semtech Corporation	Semiconductor Device on Leadframe with Integrated Passive Component	U.S. 15/043,080	2/12/2016			Pending
Semtech Corporation	Shallow-trench CMOS-compatible super junction device structure for low and medium voltage power management applications	U.S. 13/550,235 (Divisional)	7/16/2012			Pending
Semtech Corporation	Signal Concentrator Device	U.S. 14/755,602	6/30/2015			Pending
Semtech Corporation	Signal Concentrator Device	Europe EP14177644.3	7/18/2014			Pending
Semtech Corporation	Single Shot Encapsulation	U.S. 62/372,720	8/9/2016			Pending
Semtech Corporation	Synchronization Apparatus and Method	U.S. 14/849,304	9/9/2015			Pending
Semtech Corporation	System and Method for Robust and Efficient TDOA Based Location Estimation in the Presence of	U.S. 15/244,909	8/23/2016			Pending

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
	Various Multipath Delay					
Semtech Corporation	System and Method for Robust and Efficient RSSI Based Location Estimation	U.S. 15/296,740	10/18/2016			Pending
Semtech Corporation	Systems and Methods for Random Number Generation Using a Fractional Rate Clock	U.S. 14/577,372	12/19/2014			Pending
Semtech Corporation	Touch Panel Calibration System	U.S. 14/604,816	1/26/2015			Pending
Semtech Corporation	Wireless Communication Method, File XMS-16	U.S. 14/849,209	9/9/2015			Pending
Semtech Corporation	Wireless Communication Method, XMS-17	U.S. 14/849,288	9/9/2015			Pending

EXHIBIT C

U.S. PATENTS

OWNER: SEMTECH NEW YORK CORPORATION

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech New York Corporation	Clock stretcher and level shifter with small component count and low power consumption	U.S. 09/445,191	3/15/2000	6,239,644	5/29/2001	In Force
Semtech New York Corporation	Voltaic pile with charge equalizing system	U.S. 09/445,125	3/15/2000	6,511,764	1/28/2003	In Force
Semtech New York Corporation	Wireless host with improved robustness and boot capabilities	U.S. 09/681,069	12/19/2000	6,687,774	2/3/2004	In Force

EXHIBIT D
PENDING U.S. PATENTS
OWNER: SEMTECH NEW YORK CORPORATION

None.

EXHIBIT E**U.S. PATENTS****OWNER: SIERRA MONOLITHICS, INC.**

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Sierra Monolithics	Apparatus and method for calibration of gain and/or phase imbalance and/or DC offset in Communication system	U.S. 11/590,278	10/30/2006	7,620,373	11/17/2009	In Force
Sierra Monolithics	Apparatus and method for calibration of gain and/or phase imbalance and/or DC offset in Communication system	U.S. 12/575,455	10/7/2009	7,974,593	7/5/2011	In Force
Sierra Monolithics	Apparatus and method for calibration of gain and/or phase imbalance and/or DC offset in Communication system	U.S. 12/575,457	10/7/2009	7,907,916	3/15/2011	In Force
Sierra Monolithics	Apparatus and method for calibration of gain and/or phase imbalance and/or DC offset in Communication system	U.S. 12/575,458	10/7/2009	7,965,988	6/21/2011	In Force
Sierra Monolithics	Highly integrated, high-	U.S. 11/896,162	8/30/2007	7,848,367	12/7/2010	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	speed, low-power serdes and systems					
Sierra Monolithics	Multi-channel filtering system for transceiver architectures	U.S. 10/806,682	3/22/2004	7,155,193	12/26/2006	In Force
Sierra Monolithics	Multi-gigabit-per-sec clock recovery apparatus and method for optical communications	U.S. 09/895,955	6/29/2001	6,509,801	1/21/2003	In Force
Sierra Monolithics	Quadrature ring oscillator	U.S. 10/115,400	4/3/2002	6,744,325	6/1/2004	In Force
Sierra Monolithics	Serializer or integrated circuit with serdes framer interface	U.S. 10/338,972	1/10/2003	7,286,572	10/23/2007	In Force
Sierra Monolithics	Single and multiple layer packaging of high-speed/high density ICS	U.S. 09/990,247	11/21/2001	6,803,252	10/12/2004	In Force
Sierra Monolithics	Transmit and/or receive channel communication system with switchably coupled multiple filtering components	U.S. 11/594,914	11/9/2006	7,231,189	6/12/2007	In Force
Sierra Monolithics	Ultra-wideband power amplifier module apparatus and method for optical and electronic communications	U.S. 09/943,588	8/30/2001	6,639,461	10/28/2003	In Force
Sierra Monolithics	Video Serializer/Deseri	U.S. 11/842,257	8/21/2007	8,432,954	4/30/2013	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	alizer Having Selectable Multi-Lane Serial Interface					
Sierra Monolithics	Video Serializer/Deserializer Having Selectable Multi-Lane Serial Interface	U.S. 13/664,684 (Continuation)	10/31/2012	8,902,954	12/2/2014	In Force
Semtech Canada Corporation	Adaptive Equalization system and Method Having a Lock-Up-Free Quantized Feedback DC Restoration Circuit	U.S. 11/960,875	12/20/2007	8,085,839	12/27/2011	In Force
Semtech Canada Corporation	Adaptive Equalizer with Large Data Rate Range	U.S. 09/940,053	8/27/2001	7,065,134	6/20/2006	In Force
Semtech Canada Corporation	Adaptive Lock Position Circuit	U.S. 10/931,508	9/1/2004	7,049,869	5/23/2006	In Force
Semtech Canada Corporation	Bus Through Termination Circuit	U.S. 09/188,530	11/10/1998	6,118,350	9/12/2000	In Force
Semtech Canada Corporation	Closed Loop Optical Modulation Amplitude Control	U.S. 13/309,951	12/2/2011	8,548,336	10/1/2013	In Force
Semtech Canada Corporation	Closed Loop Optical Modulation Amplitude Control	U.S. 14/011,022 (CIP)	8/27/2013	9,300,405	3/29/2016	In Force
Semtech Canada Corporation	Composite Color Frame Identifier System and Method	U.S. 10/935,875	9/8/2004	7,321,397	1/22/2008	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Canada Corporation	Crosspoint Switch for Use In Video and Other Applications	U.S. 13/138,228	1/21/2010	8,694,711	4/8/2014	In Force
Semtech Canada Corporation	De-Emphasizing Cable Equalizer	U.S. 12/101,291	4/11/2008	8,081,675	12/20/2011	In Force
Semtech Canada Corporation	Direct Attach Optical Receiver Module and Method of Testing	U.S. 10/279,719	10/25/2002	7,224,910	5/29/2007	In Force
Semtech Canada Corporation	Direct Attach Optical Receiver Module and Method of Testing	U.S. 11/199,981	8/9/2005	7,391,005	6/24/2008	In Force
Semtech Canada Corporation	Direct Attach Optical Receiver Module and Method of Testing	U.S. 12/120,813	5/15/2008	7,781,720	8/24/2010	In Force
Semtech Canada Corporation	Direct Attach Optical Receiver Module and Method of Testing	U.S. 12/835,923	7/14/2010	8,134,114	3/13/2012	In Force
Semtech Canada Corporation	Digital Communication Extender System and Method (claims priority from US 60/364,430 and 60/441,010)	U.S. 10/388,916	3/14/2003	7,408,993	8/5/2008	In Force
Semtech Canada Corporation	Digital Windowing for Video Sync Separation	U.S. 10/935,874	9/8/2004	7,321,398	1/22/2008	In Force
Semtech Canada Corporation	Dynamically Trimmed Voltage	U.S. 10/294,307	11/14/2002	6,778,024	8/17/2004	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	Controlled Oscillator					
Semtech Canada Corporation	Elevated Front-End Transimpedance Amplifier	U.S. 10/657,088	9/9/2003	6,876,260	4/5/2005	In Force
Semtech Canada Corporation	Folding Sequential Adaptive Equalizer	U.S. 12/272,851	11/18/2008	8,351,493	1/8/2013	In Force
Semtech Canada Corporation	Folding Sequential Adaptive Equalizer	U.S. (Continuation) 13/733,296	1/3/2013	8,755,427	6/17/2014	In Force
Semtech Canada Corporation	Fully Integrated Received Signal Strength Indicator for a Transimpedance Amplifier	U.S. 10/654,970	9/5/2003	6,876,259	4/5/2005	In Force
Semtech Canada Corporation	Input Follower System and Method (claims priority from US 60/364,430 and 60/441,010)	U.S. 10/389,119	3/14/2003	6,838,943	1/4/2005	In Force
Semtech Canada Corporation	Linear Sample and Hold Phase Detector for Clocking Circuits	U.S. 11/472,815	6/22/2006	7,764,759	7/27/2010	In Force
Semtech Canada Corporation	Method and System for Closed Loop Control of an Optical Link	U.S. 12/218,502	7/14/2008	8,521,019	8/27/2013	In Force
Semtech Canada Corporation	Non-Linear Phase Detector	U.S. 10/006,500	12/3/2001	6,614,314	9/2/2003	In Force
Semtech Canada Corporation	Multi-Media Digital Interface Systems & Methods	U.S. 12/029,053	2/11/2008	8,462,759	6/11/2013	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Canada Corporation	Obtaining Accurate On-Chip- Time-Constants and Conductances	U.S. 09/047,751	3/25/1998	5,973,524	10/26/1999	In Force
Semtech Canada Corporation	Phase Detector Circuit for High Speed Clock Recovery from Random Binary Signals	U.S. 09/053,705	4/2/1998	6,034,554	3/7/2000	In Force
Semtech Canada Corporation	Power Supply Rejection for High Bandwidth Transimpedance Amplifier Circuits (TIAS)	U.S. 10/654,969	9/5/2003	7,183,859	2/27/2007	In Force
Semtech Canada Corporation	Precision Adaptive Equalizer Method and System	U.S. 10/930,933	8/31/2004	7,688,887	8/30/2010	In Force
Semtech Canada Corporation	Reclocker Circuit and Router Cell	U.S. 09/690,771	10/17/2000	6,791,977	9/14/2004	In Force
Semtech Canada Corporation	Serial Digital Data Communications Receiver with Improved Automatic Cable Equalizer, AGC System, and DC Restorer	U.S. 09/055,515	4/6/1998	6,304,615	10/16/2001	In Force
Semtech Canada Corporation	Serial Digital Data Communications Receiver with Improved Automatic Cable Equalizer, AGC System, and DC Restorer	U.S. 09/946,799 (Divisional)	9/2/2001	6,501,792	12/31/2002	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Semtech Canada Corporation	System & Method for Processing Digital Visual Interface Communication Data Signals & Display Data Channel Communications Signals Over a Transmission Line (original title: Digital Communication System and Method) (claims priority from US 60/364,430 and 60/441,010)	U.S. 10/388,899	3/14/2003	7,230,989	6/12/2007	In Force
Semtech Canada Corporation	System and Method for Processing Digital Visual Interface Communication Data Signals and Display Data Channel Communications Signals Over a Transmission Line	U.S. 12/478,032 Re-issue of 7,230,989	6/4/2009	RE42,291	4/12/2011	In Force
Semtech Canada Corporation	System and Method for Reducing the Lock Time of a Phase Locked Loop Circuit	U.S. 10/931,747	9/1/2004	7,205,848	4/17/2007	In Force
Semtech Canada Corporation	System and Method of Automatically	U.S. 10/635,309	8/6/2003	7,292,670	11/6/2007	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	Correcting Duty Cycle Distortion					
Semtech Canada Corporation	System and Method of Data Word Flipping to Prevent Pathological Conditions on High-Speed Serial Video Data Interfaces	U.S. 12/240,219	9/29/2008	8,116,382	2/14/2012	In Force
Semtech Canada Corporation	Systems and Methods for a Tilted Optical Receiver Assembly (Angled Flip Chip)	U.S. 11/852,506	9/10/2007	7,566,866	7/28/2009	In Force
Semtech Canada Corporation	Transmit Amplitude Independent Adaptive Equalizer	U.S. 09/957,064	9/19/2001	6,956,914	10/18/2005	In Force
Semtech Canada Corporation	Transmit Amplitude Independent Adaptive Equalizer	U.S. 11/187,265 (Divisional)	7/22/2005	7,415,064	8/19/2008	In Force
Semtech Canada Corporation	Transmit Amplitude Independent Adaptive Equalizer	U.S. 11/187,266 (Divisional)	7/22/2005	7,180,941	9/20/2007	In Force
Semtech Canada Corporation	Transmit Amplitude Independent Adaptive Equalizer	U.S. 11/187,267 (Divisional)	7/22/2005	7,317,757	1/8/2008	In Force
Semtech Canada Corporation	Transmit, Receive, and Cross-Talk Cancellation	U.S. 12/484,443 (CIP of 12/029,053)	6/15/2009	8,159,927	4/17/2012	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	Filters for Back Channelling					
Semtech Canada Corporation	Triode Region MOSFET Current Source to Bias a Transimpedance Amplifier	U.S. 10/655,461	9/5/2003	6,879,217	4/12/2005	In Force
Semtech Canada Corporation	Tunable Ring Oscillator	U.S. 10/981,048	11/4/2004	7,180,378	2/20/2007	In Force
Semtech Canada Corporation	Video Serializer/Deserializer Having an Embedded Audio Support	U.S. 10/354,875	1/30/2003	7,030,931	4/18/2006	In Force
Semtech Canada Corporation	Video Serializer & Deserializer with Mapping Conversion	U.S. 12/417,311	4/2/2009	7,839,307	11/23/2010	In Force
Semtech Canada Corporation	Video Signal Format Detector and Generator System and Method	U.S. 10/939,095	9/10/2004	6,972,803	12/6/2005	In Force
Semtech Canada Corporation	Wavelength Division Multiplexing Serial Video Signals Over Optical Interfaces Using the XFP Form Factor	U.S. 12/241,560	9/30/2008	8,335,433	12/18/2012	In Force

On October 26, 2012, Semtech Canada Corporation (Semtech Canada) entered into an IP Assignment Agreement with SMI pursuant to which Semtech Canada assigned all of its beneficial interest in U.S. Registered Patents listed, goodwill attached thereto, and the right to enforce those rights in the United States. The Assignment document specifically states that Semtech Canada shall retain all other IP rights in jurisdictions other than the United States and shall retain legal title in all U.S. Patent and Trademark rights; such patents are still listed as registered to Gennum Corporation on the USPTO Website and are legally owned by Semtech Canada Corporation.

EXHIBIT F

PENDING U.S. PATENTS

OWNER: SIERRA MONOLITHICS, INC.

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Semtech Canada Corporation	High-Speed Interface for Ancillary Data for Serial Digital Interface Applications	U.S. 13/806,373	12/21/2012			Pending
Semtech Canada Corporation	High-Speed Video Serializer and Deserializer	U.S. 12/417,303	4/2/2009			Pending

On October 26, 2012, Semtech Canada Corporation (Semtech Canada) entered into an IP Assignment Agreement with SMI pursuant to which Semtech Canada assigned all of its beneficial interest in U.S. Registered Patents listed, goodwill attached thereto, and the right to enforce those rights in the United States. The Assignment document specifically states that Semtech Canada shall retain all other IP rights in jurisdictions other than the United States and shall retain legal title in all U.S. Patent and Trademark rights; such patents are still listed as registered to Gennum Corporation on the USPTO Website and are legally owned by Semtech Canada Corporation.

EXHIBIT G
U.S. PATENTS
OWNER: SEMTECH EV, INC.

None.

EXHIBIT H

PENDING U.S. PATENTS

OWNER: SEMTECH EV, INC.

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Semtech EV, Inc.	Power Line Communications System Synchronization	U.S. 13/742,127	1/15/2013			Pending
Semtech EV, Inc.	Synchronized Slotted Power Line Communication	U.S. 14/214,095	3/14/2014			Pending

EXHIBIT I**U.S. PATENTS****OWNER: TRIUNE SYSTEMS, L.L.C.**

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Triune Systems, L.L.C.	Adaptive Termination	U.S. 13/072,462 (Continuation)	3/25/2011	8,373,436	2/12/2013	In Force
Triune Systems, L.L.C.	Adaptive Termination	U.S. 13/765,243 (Continuation)	2/12/2013	9,106,221	8/11/2015	In Force
Triune Systems, L.L.C.	Coupled Inductor Power Transfer System	U.S. 13/309,406	12/1/2011	9,444,517	9/13/2016	In Force
Triune Systems, L.L.C.	Driver Method	U.S. 13/232,855	9/14/2011	9,089,029	7/21/2015	In Force
Triune Systems, L.L.C.	Driver Method	U.S. 14/805,331 (Continuation)	7/21/2015	9,413,237	8/9/2016	In Force
Triune Systems, L.L.C.	Inductive Data Communication	U.S. 13/045,493	3/10/2011	8,583,037	4/12/2013	In Force
Triune Systems, L.L.C.	Method and System of Wireless Power Transfer Foreign Object Detection	U.S. 13/743,765	1/17/2013	9,417,199	8/16/2016	In Force
Triune Systems, L.L.C.	Pop and Click Noise Reduction	U.S. 13/540,920	7/3/2012	9,225,293	12/29/2015	In Force
Triune Systems, L.L.C.	Variable Power Energy Harvesting System	U.S. 13/427,850	3/22/2012	9,225,199	12/29/2015	In Force
Triune Systems, L.L.C.	Wireless Power Transceiver System	U.S. 13/355,416	1/20/2012	9,083,391	7/14/2015	In Force

EXHIBIT J**PENDING U.S. PATENTS****OWNER: TRIUNE SYSTEMS, L.L.C.**

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Triune Systems, L.L.C.	Adaptive Power Control for Energy Harvesting (Continuation)	U.S. 13/874,321	4/30/2013			Pending
Triune Systems, L.L.C.	Circuits and Methods for Providing Power and Data Communication in Isolated System Architectures	U.S. 15/058,701	3/2/2016			Pending
Triune Systems, L.L.C.	Coupled Inductor Power Transfer System	U.S. 15/264,251 (Continuation)	9/13/2016			Pending
Triune Systems, L.L.C.	Coupled Inductor system Having Multi-Tap Coil	U.S. 13/430,338	3/26/2012			Pending
Triune Systems, L.L.C.	Driver Method	U.S. 15/231,232 (Continuation #2)	8/8/2016			Pending
Triune Systems, L.L.C.	Electrical Line Status Monitoring System	U.S. 13/355,396	1/20/2012			Pending
Triune Systems, L.L.C.	Galvanically Isolated Switch System	U.S. 14/309,708	6/19/2014			Pending
Triune Systems, L.L.C.	Inductive Data Communication	U.S. 14/939,878	11/12/2015 (Re-Issue)			Pending
Triune Systems, L.L.C.	Method and System of Wireless Power Transfer Foreign Object Detection	U.S. 15/237,288 Continuation of 13/743,765	8/15/2016			Pending

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Triune Systems, L.L.C.	Multiple Coil Data Transmission System	U.S. 13/309,423	12/1/2011			Pending
Triune Systems, L.L.C.	Pop and Click Noise Reduction	U.S. 14/982,952 (Continuation of 9,225,293)	12/29/2015			Pending
Triune Systems, L.L.C.	Remote Energy Transfer System	U.S. 13/852,780	3/28/2013			Pending
Triune Systems, L.L.C.	Variable Power Energy Harvesting System	U.S. 14/982,893	12/29/2015 (Continuation)			Pending
Triune Systems, L.L.C.	Wireless Power Transceiver System	U.S. 14/798,700 (Continuation)	7/14/2015			Pending
Triune Systems, L.L.C.	Wireless Power Transceiver System (CIP)	U.S. 14/814,379	7/30/2015			Pending
Triune Systems, L.L.C.	Wireless Power Transmittal	U.S. 13/434,807	3/29/2012			Pending

EXHIBIT K**U.S. PATENTS****OWNER: TRIUNE IP, LLC**

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
Triune IP, LLC	Adaptive Termination	U.S. 12/813,180	6/10/2010	7,982,492	7/19/2011	In Force
Triune IP, LLC	Circuit and System for Programming a Floating Gate	U.S. 12/363,232	1/30/2009	7,859,911	12/28/2010	In Force
Triune IP, LLC	Circuit and System for Programming a Floating Gate	U.S. 12/901,702 (Divisional)	10/11/2010	8,102,718	1/24/2012	In Force
Triune IP, LLC	Circuit and System for Programming a Floating Gate	U.S. 13/327,364 (Divisional)	12/15/2011	8,441,866	5/14/2013	In Force
Triune IP, LLC	Circuit and System for Programming a Floating Gate	U.S. 13/867,757 (Continuation)	4/22/2013	8,693,261	4/8/2014	In Force
Triune IP, LLC	Current Mode Regulator	U.S. 13/567,039	8/4/2012	9,343,988	5/17/2016	In Force
Triune IP, LLC	Dynamic Biasing for Regulator Circuits	U.S. 12/814,457	6/13/2010	9,134,741	9/15/2015	In Force
Triune IP, LLC	Electrical Interconnect Status Monitoring System	U.S. 12/710,307	2/22/2010	8,461,847	6/11/2013	In Force
Triune IP, LLC	Electrical Interconnect Status Monitoring System	U.S. 13/914,501 (Continuation)	6/10/2013	8,896,318	11/25/2014	In Force
Triune IP, LLC	Electrochemical Dispensing Apparatus and Method	U.S. 12/832,519	7/8/2010	8,408,900	4/2/2013	In Force
Triune IP, LLC	Micro Matrix Data Marking	U.S. 12/646,509	12/23/2009	8,552,336	10/8/2013	In Force
Triune IP, LLC	Electrical Interconnect Status	U.S. 14/553,941	11/25/14	9,354,268	5/31/2016	In Force

Recorded Owner	Title	Application No.	Filing Date	Pub No./Registration No.	Pub. Date/Issue Date	Status
	Monitoring System	(Continuation #2)				
Triune IP, LLC	Flash LED Controller	U.S. 13/037,353	2/28/2011	8,704,450	4/22/2014	In Force
Triune IP, LLC	Integrated Inductor	U.S. 13/187,403	7/20/2011	8,664,745	11/4/2014	In Force
Triune IP, LLC	Low Power Converter	U.S. 12/954,635	11/25/2010	8,687,385	4/1/2014	In Force
Triune IP, LLC	Low Power Converter	U.S. 14/230,645 (Divisional)	3/31/2014	9,214,867	12/15/2015	In Force
Triune IP, LLC	Marking Verification System	U.S. 13/051,529	3/18/2011	8,584,961	11/19/2013	In Force
Triune IP, LLC	Monitoring Method, Circuit, and System	U.S. 12/363,095	10/10/2012 (Re-Issue)	8,300,375	10/30/2012	In Force
Triune IP, LLC	Monitoring Method, Circuit, and System	U.S. 13/663,111 (Divisional)	4/24/2013 (Re-Issue)	8,743,522	6/3/2014	In Force
Triune IP, LLC	Multiple Input Channel Power Control Circuit	U.S. 12/185,306	9/15/2010	7,808,127	10/5/2010	In Force
Triune IP, LLC	Non-Volatile Memory Monitor	U.S. 12/492,091	1/4/2012	8,102,713	1/24/2012	In Force
Triune IP, LLC	Protocol Method Apparatus and System for the Interconnection of Electronic Systems	U.S. 12/146,474	10/13/2010	7,827,334	11/2/2010	In Force
Triune IP, LLC	Scalable Harvesting System and Method	U.S. 13/772,190	2/20/2013	9,438,053	9/6/2016	In Force
Triune IP, LLC	Topical Applicator	U.S. 13/495,219	6/13/2012	8,768,455	7/1/2014	In Force
Triune IP, LLC	Ultra-Low Power Converter	U.S. 13/540,883	7/3/2012	8,964,418	2/24/2015	In Force
Triune IP, LLC	Voltage Transient Protection Circuitry	U.S. 13/540,902	7/3/2012	9,231,400	1/5/2016	In Force

EXHIBIT L**PENDING U.S. PATENTS****OWNER: TRIUNE IP, LLC**

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Triune IP, LLC	Battery Charger	U.S. 13/193,407	7/28/2011			Pending
Triune IP, LLC	Biosensor to Detect Pathogens in Liquid	U.S. 12/897,672	10/4/2010			Pending
Triune IP, LLC	Circuit and System for Programming a Floating Gate	U.S. 15/094,306 (Reissue)	4/8/2016			Pending
Triune IP, LLC	Current Mode Regulator (Continuation)	U.S. 15/155,909	5/16/2016			Pending
Triune IP, LLC	Dynamic Biasing for Regulator Circuits (Continuation)	U.S. 14/855,286	9/15/2015			Pending
Triune IP, LLC	Electric Line Interface System	U.S. 13/489,329	6/5/2012			Pending
Triune IP, LLC	Electrical Interconnect Status Monitoring System	U.S. 15/165,870 (Continuation #3)	5/26/2016			Pending
Triune IP, LLC	Electronic-Based Biosensor	U.S. 14/267,678	5/1/2014			Pending
Triune IP, LLC	Flash LED Controller (Reissue)	U.S. 15/136,692	4/22/2016			Pending
Triune IP, LLC	High-Frequency Wireless Power System	U.S. 14/178,161	2/11/2014			Pending
Triune IP, LLC	Isolation for Communication and Power	U.S. 14/638,701	3/5/2015			Pending
Triune IP, LLC	Low Power Converter	U.S. 14/970,396 (Continuation)	12/15/2015			Pending

Recorded Owner	Title	Application No.	Filing Date	Pub No./ Registration No.	Pub. Date/ Issue Date	Status
Triune IP, LLC	Marking Verification System	U.S. 14/946,555	11/19/2015 (Re-Issue)			Pending
Triune IP, LLC	Micro Matrix Data Marking	U.S. 14/878,220	10/8/2015 (Re-Issue)			Pending
Triune IP, LLC	Method and System of Wireless Power Transfer Foreign Object Detection	U.S. 13/754,709	1/30/2013			Pending
Triune IP, LLC	Monitoring Method, Circuit, and System	U.S. 15/173,265 (Reissue of 8,743,522)	6/3/2016			Pending
Triune IP, LLC	Power Sharing Solid-State Relay	U.S. 14/814,368	7/30/2015			Pending
Triune IP LLC	Scalable Harvesting System and Method	U.S. 15/257,561 (Continuation)	9/6/2016			Pending
Triune IP, LLC	Resonant Circuit Dynamic Optimization System and Method	U.S. 13/851,892	3/27/2013			Pending
Triune IP, LLC	Tunable Synchronous Rectifier	U.S. 13/616,726	9/14/2012			Pending
Triune IP, LLC	Ultra-Low Power Converter	U.S. 14/630,415 (Continuation)	2/24/2015			Pending
Triune IP, LLC	Voltage Transient Protection Circuitry	U.S. 14/988,647 (Continuation)	1/5/2016			Pending